March 2025

Golden Beach Energy Storage Project

Geophysical Investigations Program

The Golden Beach Energy Storage Project (Project) is a gas storage project off the coast of Gippsland, near Golden Beach. It will initially produce a limited amount of natural gas from the Golden Beach field in Bass Strait, before transitioning to an underground offshore gas storage facility. Natural gas will be transported from the storage facility to an onshore processing facility near Longford via an underground pipeline.

Having gas in storage and available for use on peak days will help balance the energy market and ensure security of supply as more renewable energy enters the system.

The next key milestone for the Project is a Geophysical Investigation Program.



Further information

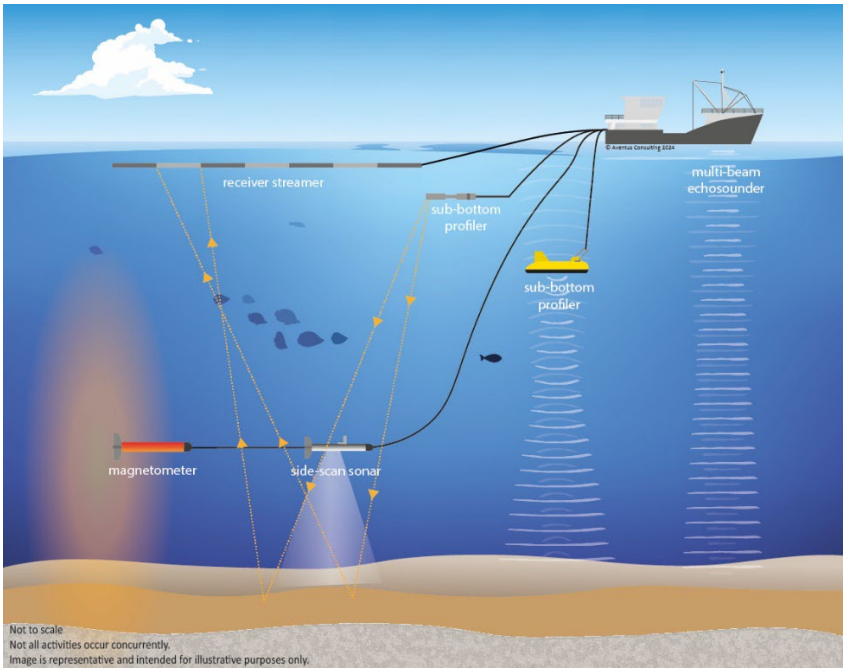
Email: info@gbenergy.com.au
Phone: 1800 423 637

Website: gbenergy.com.au

Offshore Geophysical Investigation Program

GB Energy (GBE) are planning to undertake a Geophysical Investigation Program to provide information on the suitability of the seabed to support a jack-up drill rig and a pipeline. Geophysical investigations collect seabed and shallow geological information to inform the safe location of this infrastructure. The survey would be completed by an offshore work boat.

The close to shore survey at approximately 10m water depth will use a smaller work boat (recreational type boat) to tow an air gun (housed in a positively buoyant plastic canister) above the seafloor. A 30-40m long hydrophone streamer will be used with hydrophones spaced at 1-2m intervals.



A simplified representation of offshore geophysical investigation techniques.

Onshore Geophysical Investigation Program

The onshore seismic survey will be conducted using a small vehicle-mounted quad bike or off-road buggy. A sound detector may be towed behind the vehicle or hand-carried by a field crew of 2-4 personnel where terrain is sensitive.

Site Location

Geophysical investigations will take place from the shoreline to approximately 2.7km offshore from the township of Golden Beach. They will be undertaken in an area located entirely within Victorian State waters. Water depths in the area range from 1 m to 21 m.

Please refer to the map attached

Timeline

Geophysical investigations are scheduled to commence in late 2025 / early 2026, with the activities taking approximately 10-12 days to complete.

Why are geophysical investigations necessary?

A Geophysical Investigation Program is required to provide information on sea-bottom and shallow subsurface conditions to help GBE decide where to locate a jack-up drilling rig and subsea pipeline.

How does the Geophysical Investigations Program take place?

The geophysical investigation will use a small, locally based vessel suitable for the shallow waters of the area.

Geophysical investigations involve the following suite of tests:

- Assess water depths – using a multi-beam echo sounder.
- Detect seabed hazards such as pipelines, shipwrecks, reefs and anchors – using a side scan sonar.
- Map the structure and thickness of the uppermost seabed sediments (shallow geology) – using a sub-bottom profiler.
- Detect metallic objects on or below the seabed, such as cables, anchors, chains, buried pipelines – using a magnetometer.
- Map the near-surface geological hazards, such as shallow gas pockets – using a mini-airgun or sparker system.

Environment Plan

Prior to the geophysical investigations commencing, GBE will submit an Environmental Plan (EP) for approval to the regulator within the Victorian Department of Energy, Environment and Climate Action (DEECA).

The EP is a comprehensive document detailing the existing environment, potential impacts and risks of the activity, and describes how the Geophysical Investigation Program will be conducted to manage, minimise or avoid environmental risks to be 'ALARP' (As Low As Reasonably Practicable).

All geophysical activities will be subject to industry best practice standards and will be undertaken in accordance with all applicable environmental and safety legislation and regulations.

Following regulatory acceptance of the EP a Summary Environment Plan will be published on the DEECA and GB Energy websites.

Potential impacts and risks and control measures

GB Energy is committed to conducting its Geophysical Investigations Program with minimal impact on the environment. The potential impacts and risks associated with these surveys are expected to be low. The primary impact will be the generation of underwater noise, which is carefully managed and regulated through the approval process. This may result in temporary disruption to sound-sensitive fauna (i.e., whales, dolphins, some fish). Additionally, some low-level noise may result from the movement of survey vessels between local ports, berths and the survey area.

Event in April 2025

GB Energy will publish updates on the EP and other regulatory related documents on their website.

GB Energy will be holding a community information session at Golden Beach in April, with further sessions to take place ahead of the operations.

Details of the community session are provided below.

Date: Tuesday 8 April 2025

Venue: Golden Paradise Beach Community Centre

1-11 Surf Edge Drive Golden Beach 3851

Time: 5pm to 7:30pm

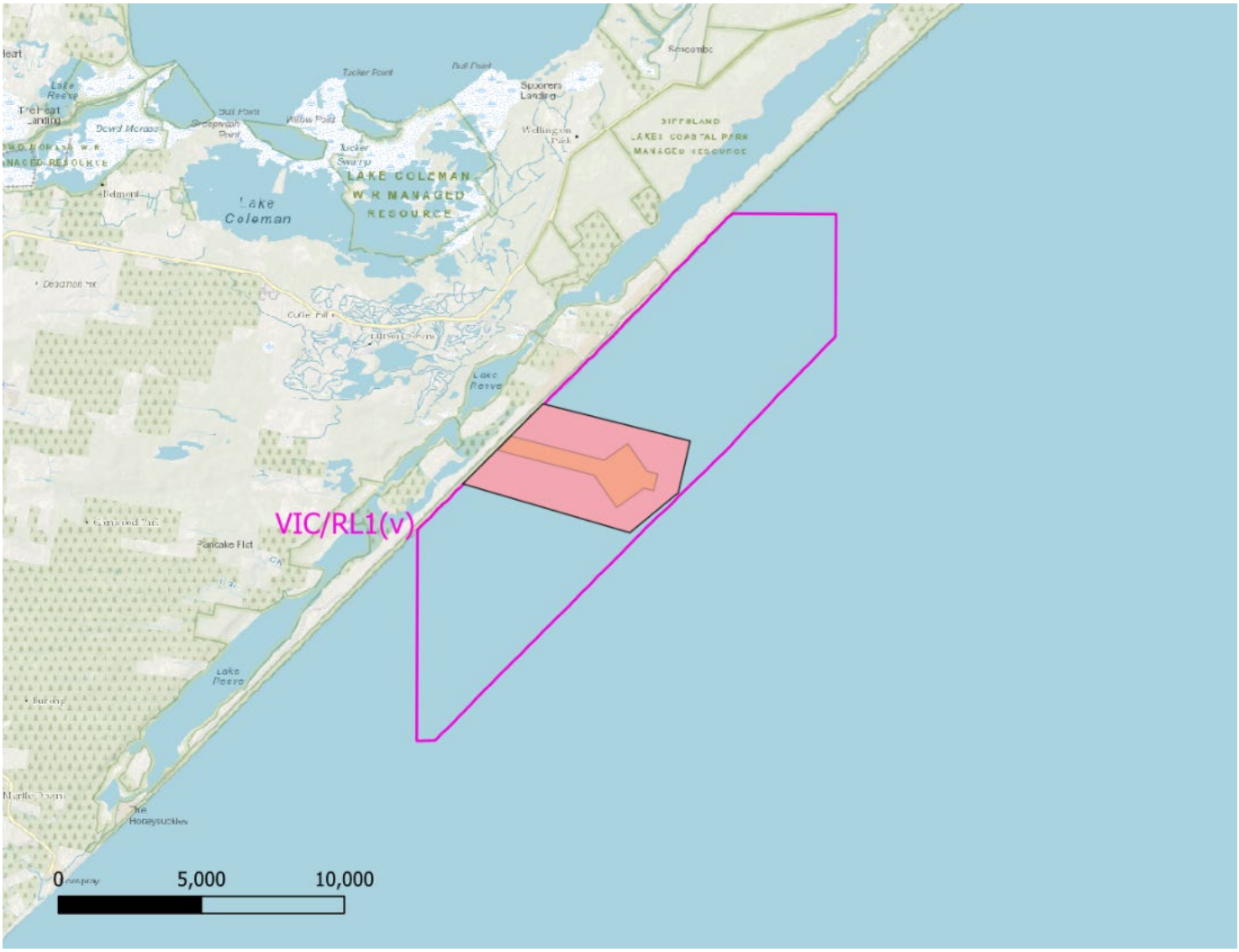
Further Information

Further details on the geophysical survey can be found on the GB Energy website:

www. gbenergy.com.au

Please feel free to contact GB Energy on 1800 423 637 or info@gbenergy.com.au about any questions you might have in relation to the Geophysical Investigation Program.

Golden Beach Energy Storage Project
Proposed Geophysical Investigation Program Location



Further information

Email: info@gbenergy.com.au
Phone: 1800 423 637

Website: gbenergy.com.au

Potential impacts and risks and control measures

GB Energy is committed to conducting its Geophysical Investigations Program with minimal impact on the environment. The potential impacts and risks associated with these surveys are expected to be low. The primary impact will be the generation of underwater noise, which is carefully managed and regulated through the approval process. Additionally, some low-level noise may result from the movement of survey vessels between local ports, berths and the survey area.

To ensure environmental protection, the control measures outlined in the table below will be followed by all individuals involved in the Geophysical Investigations Program. This table also details the mitigation strategies GB Energy will implement to minimise environmental impacts.

We value your feedback and invite you to participate in the consultation process.

PLANNED EVENTS		
HAZARD	**POTENTIAL IMPACTS**	**MANAGEMENT AND MITIGATION MEASURES**

Underwater sound generated from geophysical equipment and vessel engine noise	• Temporary disruption to migration, feeding or breeding behaviours for sound-sensitive fauna (i.e., whales, dolphins, some fish)	• Implement *EPBC Act Policy 2.1 – Part A Standard Management Procedures* including:
		  ○ Start-up procedure
		  ○ Start-up delay procedure
		  ○ Operations procedure
		  ○ Nighttime and low-visibility procedure
		• An experienced marine mammal observer (MMO) will be employed during geophysical investigations
		• All whale sightings will be reported online to DCCEEW within 3 months of project completion
		• Vessel thrusters will be well maintained
		• Geophysical investigations will not be undertaken concurrently with local recreational fishing competitions
		• Commercial and recreational user groups in the area will be notified
		• Avoid or limit geophysical investigations during public holidays

Seabed disturbance	• Temporary and localised turbidity • Smothering of seabed habitat by disturbed sediments	• Only vessels suitable for work in shallow water (i.e., fitted with depth sounders) will be contracted • Vessel speed, trim and steering will be monitored to prevent wake impacts and reduce seabed disturbance in shallow water • Vessels will not anchor over important benthic habitat or key features • Damage to rocky reef or sensitive benthic habitat will be avoided by including detailed bathymetric mapping into the vessel navigation system and marking it for avoidance • The tow fish depth will be adjusted to keep towed equipment clear of the seabed

PLANNED EVENTS cont.		
HAZARD	**POTENTIAL IMPACTS**	**MANAGEMENT AND MITIGATION MEASURES**
Light emissions (direct and ambient)	• Temporary and localised attraction of light-sensitive fauna • Visual impact from the shoreline	• Light glow is minimised by managing external vessel lighting in accordance with AMSA *Marine Orders Parts 30* and *59* • Lighting is managed in accordance with relevant aspects of the *National Light Pollution Guidelines for Wildlife* • Shielded and directional low-intensity lighting will be used • Surveys will be scheduled to maximise surveying during the daytime where feasible
Water quality	• Grey water and sewage – Temporary and localised reduction in water quality	• All vessels will comply with *MARPOL 73/78 Annex IV* and *Marine Order 96* • The contractor will aim to retain all sewage and grey water onboard for onshore disposal ▪ Where this is not possible, treated sewage will only be discharged within Commonwealth Waters (i.e., 3 nm from land) or alternatively untreated sewage will be discharged more than 12 nm from land at a speed of greater than four knots
	• Deck and bilge water – temporary and localised reduction in water quality	• All discharged deck and bilge water will be managed in accordance with *MARPOL 73/78 Annex I* • Bilge water will only be discharged in Commonwealth Waters from a *MARPOL 73/78 Annex V* compliant bilge drainage system • Vessels <400 gross tonnes, bilge water will be retained onboard for onshore disposal, or treated and discharged as above • Drainage water from areas that may be contaminated with traces of hydrocarbons will be treated in an oil-in-water separator, which will be shut off where concentrations exceed 15 parts per million • Hydrocarbon and chemical storage areas will be bunded to drain to the bilge tank • Portable bunds and/or drip trays will be used to collect spills or leaks from equipment not contained in permanently bunded areas • Residual oil will be pumped to tanks for onshore disposal • Deck cleaning detergents will be biodegradable
	• Cooling water and brine – temporary and localised elevation in sea surface water temperature and salinity levels	• Engines and associated equipment that require cooling by water will be maintained in accordance with the vessel maintenance system so that they are operating within accepted parameters • Only low-toxicity chemicals are used in the cooling and brine water systems

Golden Beach Energy Storage Project
Proposed Geophysical Investigation Program Location

PLANNED EVENTS cont.		
HAZARD	**POTENTIAL IMPACTS**	**MANAGEMENT AND MITIGATION MEASURES**
Air emissions	• Temporary and localised decrease in air quality	• Vessel will comply with *MARPOL 73/78* requirements, including low sulphur (<0.5% m/m) marine diesel • Combustion equipment will be well maintained • Oil and other noxious liquid substances will not be incinerated • Fuel use will be measured, recorded and reported, and any abnormal use will be rectified
Discharge of putrescible waste (food scraps)	• Temporary and localised increase in nutrient content of surface waters • Increase in scavenging behaviour of marine fauna and seabirds	• Food scraps will be managed in line with the vessel Garbage Management Plan (GMP), and either returned to shore for disposal or discharged overboard only when the vessel is >3 nautical miles from shore and after waste has been macerate to <25 mm in line with *MARPOL Annex V* requirements

UNPLANNED EVENTS		
HAZARD	**POTENTIAL RISKS**	**MANAGEMENT AND MITIGATION MEASURES**
Damage to underwater cultural heritage	• Damage to underwater artefacts that may hold cultural and social significance to local communities	• All know underwater cultural heritage will be marked on survey plans prior to commencement • An Unexpected Finds Procedure will be developed and implemented to account for the discovery of any seabed anomalies during the survey

Accidental release of hazardous and/or non-hazardous waste overboard	• Marine pollution causing a temporary and localised reduction in water quality
	• Injury and entanglement of marine fauna
	• Smothering or pollution of benthic habitats
		• Vessel will implement a vessel-specific Garbage Management Plan (GMP), which includes:
		  ○ Inducted into the waste management procedures
		  ○ Waste manifest will be maintained
		  ○ Solid waste that is accidentally discharged overboard will be recovered if safe and practicable to do so
		• GMP will be implemented if the vessel is >100 gross tonnes or certified to carry more than 15 people
		• Large bulky objects are securely fastened to or stored on the deck to prevent loss at sea
		• Handling and transfer procedures are in place and implemented to prevent dropped objects, and those who implement the procedures are adequately trained
		• Lifting equipment in maintained in certification and tested regularly in line with the vessel Planned Maintenance Schedule
		• Emergency spill kits will be available for wet and dry spills

UNPLANNED EVENTS cont.		
HAZARD	**POTENTIAL RISKS**	**MANAGEMENT AND MITIGATION MEASURES**

Introduction of invasive marine species (IMS) from vessel hulls and/or ballast water	• Reduction in native marine species diversity and abundance
	• Displacement of native marine species
	• Socio-economic impacts on commercial fisheries
	• Reduction of conservation values of protected areas
		• A Biosecurity Management Plan (BMP) will be prepared and implemented, including the following requirements:
		  ○ Routine inspections of vessels and equipment to avoid introduction of IMS
		  ○ Demonstrate antifouling agents comply with the *Protection of the Sea (Harmful Anti-fouling Systems) Act 2006*
		• Vessel will be compliant with the *Australian Ballast Water Management Requirements*
		• Non-compliant discharges of domestic ballast water will be reported immediately to the National Maritime Centre (NMC)
		• Vessels will be managed in accordance with the *Guidelines for the Control and Management of Ships' Biofouling to minimise the Transfer of Invasive Aquatic Species* (IMO, 2011)
		• Ships >400 gross tonnes carry a current International Anti-fouling System (IAFS) Certificate and is compliant with *Marine Order Part 98* (Anti-fouling Systems)
		• Biofouling risk assessment will be completed to calculate the vessels risk status – only vessels that are not of 'high risk' will be permitted to work on the Geophysical Investigations Program
		• Towed/submersible equipment will be cleaned (i.e., fouling removed) prior to initial use in the survey area
		• Cleaning will be done in a location with suitable facilities to prevent waste from returning to the water

Vessel strike or entanglement with marine fauna	• Injury or death of individual animals	• The *Australian National Guidelines for Whale and Dolphin Watching* (2017) will be implemented including:
		  ○ Caution zones (300 m either side of whales and 150 m either side of dolphins) – the vessel will operate at no wake speed in this zone
		  ○ No approach zone (100 m either side of whales and 50 m either side of dolphins) – the vessel will not enter this zone and should not wait in front of the direction of travel of an animal or pod/group
		  ○ Do not encourage bow riding – if animals are bow riding, do not change course or speed suddenly
		  ○ If there is a need to stop, reduce speed gradually
		• Vessel crew will complete an environmental induction covering the above-listed requirements for vessel and megafauna interactions
		• Any fauna collisions leading to suspected injury or death will be reported in the National Ship Strike Database
		• Entanglement of megafauna in towed equipment will be reported to the Whale and Dolphin Emergency Hotline